

Title (en)

Turbomachine rotor with blades of different frequency

Title (de)

Turbomaschinenrotor mit Schaufeln unterschiedlicher Eigenfrequenz

Title (fr)

Rotor de turbomachine avec des aubes à fréquence propre différente

Publication

EP 1211382 A3 20040102 (EN)

Application

EP 01309981 A 20011128

Priority

US 72823800 A 20001130

Abstract (en)

[origin: US2002064458A1] The present invention relates to an array of flow directing elements having increased flutter stability for use in turbomachinery devices. The array comprises at least one high frequency flow directing element and at least one low frequency flow directing element. In a preferred embodiment, the array comprises a plurality of alternating high frequency and low frequency flow directing elements. Each high frequency flow directing element has its three lowest frequency vibratory modes at least 2.0% higher in frequency than the three lowest frequency vibratory modes of each low frequency flow directing element. The array of the present invention has particular utility in a turbomachinery device as part of a rotor stage.

IPC 1-7

F01D 5/10; **F01D 5/16**

IPC 8 full level

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Citation (search report)

- [Y] US 5988982 A 19991123 - CLAUER ALLAN H [US]
- [Y] US 4097192 A 19780627 - KULINA MARK R
- [A] GB 1262182 A 19720202 - MO ENERGETICHESKIJ INSTITUT [RU]
- [A] DE 1177277 B 19640903 - BBC BROWN BOVERI & CIE

Cited by

EP3460186A1; EP1645720A1; EP1447525A1; FR2851285A1; EP1589191A1; FR2869069A1; US11002293B2; US9932840B2; US7037078B2; US7500299B2; EP3176369A1; US10508661B2; US10443411B2; US10689987B2; EP2860347A1; US9835166B2; US10837459B2; US10865806B2

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